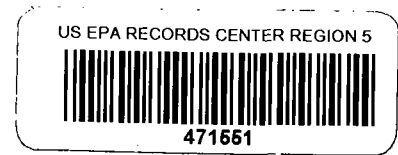
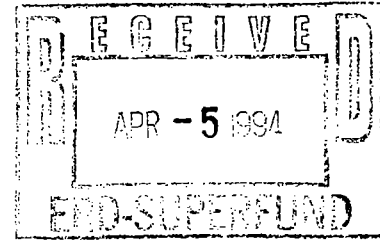


9403103.WP/CR912
8809-00



April 4, 1994



Mr. Gene Hall
Environmental Response Division
Michigan Department of Natural Resources
300 S. Washington Square
Lansing, MI 48909

Subject: Final Work Plan
Albion-Sheridan Township Landfill

Dear Mr. Hall:

Enclosed are seven copies of the Final Work Plan for the Albion/Sheridan landfill test pitting project. The Work Plan has been revised in accordance with the agreements reached during our meeting at ABB Environmental Services' (ABB-ES) office on March 24, 1994 and our subsequent telephone conversations. During the meeting and in subsequent conversations, we discussed the Michigan Department of Natural Resources' (MDNR) and the U.S. Environmental Protection Agency's (USEPA) comments on the draft Work Plan.

The remainder of this letter summarizes the agreements that were reached.

1. Emission suppressant foam will not be required at the site. Instead, plastic sheeting will be available to cover excavated materials and/or the excavated areas, should emissions exceed specified action levels. In addition, excavation practices will be modified or stopped if action levels are exceeded. Action levels will be specified in the site Health and Safety Plan (HASP).
2. No formal lined/bermed staging area for overpacked drums will be constructed. Overpacked drums will be left near the backfilled excavation areas. It is MDNR's position that overpacked drums are adequately contained.
3. The excavation equipment will not be decontaminated between excavation areas but will be decontaminated at the conclusion of the excavation activities on the last day.
4. ABB-ES will not bring clean soil on site for placement over the backfilled excavation areas. Instead, top soil removed from the excavated areas will be segregated from other excavated materials. The topsoil will be replaced over the backfilled excavation areas.
5. ABB-ES' excavation contractor will provide breathing air for one MDNR person during the test pitting operations.

ABB Environmental Services Inc.

Mr. Gene Hall
April 4, 1994
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6. ABB-ES will use disposable sampling equipment, when possible.
7. Used personal protective equipment will be drummed and left on site. *who disposes?*
8. The MDNR will seek to obtain an access agreement from the site's closest neighbor as soon as possible.
9. The MDNR will perform compound-specific air monitoring. The MDNR will provide to ABB-ES action levels at which compound-specific monitoring will be initiated. This information will be included in the site HASP to be developed by ABB-ES.
10. The MDNR will collect trip blanks.
11. The MDNR will provide 10-mil high-density polyethylene sheeting to be used to construct a temporary decontamination pad for the excavation equipment.
12. The MDNR will collect photograph and video *good!* documentation of site activities.
13. The MDNR laboratory will perform all analytical services of all media. This includes samples from drums, compound-specific air monitoring and personal sampling pumps. As such, the Quality Assurance Project Plan to be developed by ABB-ES will not include information regarding the analytical program to be performed by the MDNR. The MDNR will verify that the MDNR laboratory will be able to provide these services.
14. The MDNR laboratory will provide to ABB-ES sample containers and pre-preserved bottles, as necessary.
15. The MDNR will provide ABB-ES with the USEPA's site HASP. *for RI?*
16. In accordance with the HASP to be developed by ABB-ES, the MDNR will notify appropriate local authorities, hospitals and HAZMAT teams of the work to be performed at the site.
17. MDNR has agreed that ABB-ES will develop the Technical Memorandum as scoped in the original draft Work Plan.
18. Travel time and associated costs for the ABB-ES Health and Safety Officer (HSO) to travel from Portland, Maine, to Michigan will not be charged to the Albion-Sheridan project. The airfare and travel time for the HSO have been removed from the Work Plan.
19. ABB-ES will provide the temporary site trailer.
20. Additional detail has been provided in the Work Plan for per diem and equipment costs. The total per diem cost has been increased from that shown in the draft Work Plan to accurately reflect the number of days and personnel to be on site.
21. The Work Plan has been corrected to show the HSO as a P2 rather than as a P3.

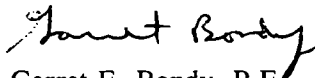
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Page 3

22. Additional detail has been provided in the Work Plan regarding budgeted labor hours for personnel during test pitting operations. ABB-ES assumed that the majority of field personnel will work 12-hour days to accomplish the tasks outlined in the Work Plan.

If any of these statements conflict with your understanding of our verbal agreements, please call me at 810-489-8040.

Sincerely,

ABB ENVIRONMENTAL SERVICES, INC.



Garret E. Bondy, P.E.
Site Manager

GEB/crc

Enclosure

WORK PLAN
TEST PITTING OPERATIONS
ALBION-SHERIDAN TOWNSHIP LANDFILL

OBJECTIVES

A recent study conducted at the Albion-Sheridan Township Landfill (ASTL) site in Albion, Michigan, revealed several areas within the landfill where magnetic anomalies have been located. Other information obtained by the Michigan Department of Natural Resources (MDNR) suggests that drums, possibly containing industrial wastes, were buried at the ASTL between 1966 and 1981. The MDNR has requested that ABB Environmental Services, Inc. (ABB-ES) conduct a test pitting program in several of these anomalous areas to:

- (1) assess whether drums containing industrial wastes are present in significant numbers in concentrated areas (as opposed to sporadic occurrences in scattered locations); and
- (2) sample the contents of selected drums to evaluate whether they contain substances that may pose a significant threat to public health and the environment.

The following scope of work was developed in cooperation with the MDNR to meet these objectives.

SCOPE OF WORK

The following seven tasks will be performed by ABB-ES to assist the MDNR in meeting the project objectives:

Task 1: Project Initiation/Work Plan Preparation

This task includes all of the activities necessary for ABB-ES to initiate the ASTL project and to develop the project Work Plan. These activities include the review of background information, discussions with the MDNR project staff, and other project management activities. The Work Plan explains the scope, schedule, and estimated budget for the project and describes the methods to be used in implementing

future tasks. The Work Plan also assigns responsibilities to key project personnel.

Four copies of the draft Work Plan will be submitted to MDNR for review and comment. After receiving written comments, ABB-ES will make the appropriate revisions and submit seven copies of the final document. In preparing the project budget and schedule, it is assumed that revisions requested by the MDNR will be minor.

Tasks 2 through 8 will be initiated upon MDNR approval of the Work Plan and issuance of a contract release form (CRF).

Task 2: Quality Assurance Project Plan Preparation

The Quality Assurance Project Plan (QAPP) will describe the procedures to be used during this study to collect samples and conduct air monitoring. These procedures will assure that valid and appropriate methods are consistently applied toward achieving project objectives. The QAPP will not include methods to be used by the MDNR in collecting compound-specific air monitoring samples. The QAPP will also not include analytical procedures to be used by the MDNR laboratory, in analyzing samples collected from drums, from compound-specific air monitoring, and from personal monitoring pumps.

The QAPP must be approved by MDNR prior to any on-site activity. In addition to a title page and a table of contents, the QAPP will conform to MDNR guidelines and will include the following 14 elements:

1. Project Description
2. Project Organization and Responsibilities
3. QA Objectives for Measurements
4. Sampling Procedures
5. Sample Custody
6. Calibration Procedures
7. Analytical Procedures
8. Internal Quality Control
9. Data Reduction, Interpretation, Validation and Reporting

10. Performance and System Audits
11. Preventative Maintenance
12. Data Assessment Procedures
13. Corrective Actions
14. Quality Assurance Reports

At the request of MDNR, these elements have been addressed in two separate volumes. Volume 1 contains information on project-specific elements. Elements that are generally applicable to all projects are addressed in Volume 2. Together, these two documents will comprise the QAPP for the ASTL site project. Volume 1 will be developed upon approval of this Work Plan and authorization to proceed by the MDNR. Volume 2 is on file with the MDNR, Environmental Response Division, in Lansing.

Four copies of the draft QAPP will be submitted to the MDNR for review and comment. After receiving written comments, ABB-ES will make the appropriate revisions and submit two copies of the final document. In preparing the project budget and schedule, it is assumed that revisions requested by the MDNR will be minor.

Task 3: Health and Safety Plan Preparation

ABB-ES will review available data regarding contaminants likely to be present at the ASTL site and assess the potential hazards that may be encountered during the field activities. The MDNR has agreed to provide ABB-ES with a copy of the USEPA Health and Safety Plan (HASP) for the ASTL site. ABB-ES will use this information to write a site HASP in accordance with ABB-ES' Corporate Health and Safety Program and OSHA requirements to minimize the risk to project staff from potential chemical and physical hazards at the site. The HASP will include information on expected contaminants, a hazards evaluation, anticipated level of personal protection, decontamination procedures, a list of monitoring equipment to be provided and used by ABB-ES, monitoring procedures to be used by ABB-ES, air monitoring action levels and required response actions, and emergency procedures and phone numbers. The HASP will not include the equipment and procedures to be used in compound-specific air monitoring. The HASP will include the action level(s) at which compound-specific monitoring will be conducted by the MDNR. This information will be provided to ABB-ES by the MDNR.

All personnel conducting field activities at the site will be required to read the HASP and must have satisfied the OSHA training requirements outlined in 29 CFR 1910.120. Based on available data, it is anticipated that Level B protection will be necessary during this project.

Because of the inherently dangerous nature of this assignment, an expert in health and safety issues will be present during the test pitting activities to ensure that the health and safety of on-site personnel is safeguarded at all times. It is anticipated that the Health and Safety Officer (HSO) will be provided by ABB-ES' Portland, Maine, office. Costs of travel to Michigan from Portland, Maine, will not be charged to this project.

Four copies of the HASP will be submitted to the MDNR for review. Upon receipt of written comments, ABB-ES will make the appropriate revisions and submit two copies of the final document. In preparing the project budget and schedule, it is assumed that revisions requested by the MDNR will be minor.

A copy of the HASP will also be kept on site during field activities.

Task 4: Mobilization

This task includes procurement of the test-pitting contractor and mobilization of the field facilities and equipment that are required before test pitting can begin. It includes the establishment of site services and utilities. ABB-ES will provide a temporary field office/storage trailer on the site during the field activities. The trailer will be installed near the existing entrance to the landfill to provide a central location for communications, shelter, office space, equipment storage, and related activities. The project budget includes the cost of having electricity and telephone services connected to the trailer.

Based upon discussions with the MDNR, the MDNR will provide materials to construct a decontamination pad large enough to decontaminate the excavation equipment (to include 10-mil HDPE plastic sheeting and timbers). Under this task, the test-pitting contractor will mobilize necessary equipment and supplies. It is assumed that the test-pitting contractor will deliver 50 overpack drums to the site.

Included in the mobilization task is the cost for ABB-ES personnel to travel to the site to organize

equipment, collect the background air monitoring samples and measurements described under Task 5, and prepare for test pitting. It is assumed under this task that at least one MDNR representative will be present at the site to show ABB-ES personnel the areas to be test pitted. It is further assumed that during this task the MDNR will have marked in advance (using stakes or flags) those areas that are to be test pitted. The MDNR has agreed to notify, during mobilization, the appropriate authorities, hospital, and HAZMAT teams of the work to be performed at the site.

Task 5: Test Pitting

This task includes test pitting, sampling of drums, staging of drums removed from the excavation and air monitoring. ABB-ES has assumed that at least one MDNR representative, outfitted in Level B, will be present to observe all test pitting activities. The MDNR representative will select the areas to be test pitted, and will provide direction as to the extent of each test pit and which drums to sample. The MDNR has agreed that its representative will document the test pitting activities through photographs and video equipment. The ABB-ES excavation contractor will provide breathing air for one MDNR representative during test pitting activities.

The ABB-ES field crew will consist of a Field Operations Leader (FOL) to direct and lead the field effort, an HSO to monitor and address health and safety concerns, a field geologist to assist in the field work, a site manager, and a project assistant to provide clerical and other support services. During test pitting activities, the FOL will be at the excavation helping to direct the excavation, sample drums, and document findings. The site manager will assist the FOL at the excavation with sampling, documentation, and ambient air monitoring. The field geologist will be positioned in the contaminant reduction zone ready to assist in the exclusion zone in case of emergency. The field geologist will also assist with decontamination of personnel, equipment, and sample containers and will also monitor breathing air cylinders. The HSO will traverse the work site to monitor ambient conditions at the excavation, at the exclusion zone perimeter, and at the site perimeter. The project assistant will be positioned in the field trailer and will be responsible for tracking costs of the project as well as other administrative support duties. For budgetary purposes, a 12-hour work day was assumed for the FOL, HSO, and field geologist. Eight-hour days were assumed for the site manager and project assistant.

It is anticipated that a track-hoe will be used to dig the test pits. At all times, the track-hoe will be

operated in a manner to minimize the potential for rupturing buried drums. In beginning a test pit, the track-hoe will scrape the ground surface lightly to assess whether drums are present near the surface and to remove the existing landfill cover. The existing cover will be segregated from the other excavated materials and used to re-cover the backfilled excavation. If drums are found within 4 feet of the surface, an attempt to access them for sampling will be made using hand shovels or other tools, if practical. If drums are not found near the surface, the test pit will be expanded and made deeper. The test pits will extend to a maximum depth of 15 feet.

Excavated bulk material will be stockpiled on plastic sheeting in discrete piles as it is removed. Any stockpiled contaminated soil exposed for an extended period of time will be covered with plastic sheeting. Upon completion of a test pit, stockpiled material will be sequentially replaced into the excavation. Clean fill will not be brought to the site to cover test pits. Instead the existing landfill cover material will be segregated and used for final cover. Each test pit will be backfilled prior to initiating another, and no test pit will remain open overnight. Upon completion of a test pit, another area will be test pitted as selected by the on-site MDNR representative. The excavation equipment will not be decontaminated between test pits. The equipment will be decontaminated upon completion of the test pitting on the last day.

If drums are encountered, an attempt will be made to sample the contents of selected drums using the following general procedures and disposable sampling equipment, when possible:

- Every attempt will be made to obtain samples without the removal of drums.
- No personnel will be allowed to enter a test pit that is deeper than 4 feet, which would be considered a confined space.
- When it is impractical to sample a drum in place, a drum may be removed from the excavation for ex-situ sampling, if it appears practical to remove the drum without releasing its contents.
- Drums removed from an excavation will be placed into DOT-approved overpack containers.

- Whenever possible, drums will be opened by removing the ring and lid or the bung to obtain a sample. If intact drums are removed from the excavation but cannot be opened by hand, a non-sparking puncturing device attached to the track-hoe will be used to remotely puncture the drum as it sits in the overpack.

ABB-ES will collect a sufficient amount of sample from each drum to accommodate the analytical methods specified by the MDNR laboratory. It is assumed that the MDNR will provide ABB-ES with the pre-prepared sample containers and pre-preserved sample bottles, as necessary. The MDNR will collect any necessary trip blanks. ABB-ES personnel will prepare the samples for transport to the MDNR laboratory. ABB-ES has assumed that, upon completion of the field work, the MDNR on-site representative will transport the samples to the MDNR laboratory.

At the request of the MDNR, drums observed to contain liquid materials will be removed from the excavation, if the removal is not likely to result in a release of the drum's contents. In the event that a drum has been ruptured and spilled liquids are observed, to the extent feasible, the spilled liquids and the ruptured drum will be removed and placed into overpack containers. If the drum cannot be removed without causing a larger release, then it will be left in place. If the drum is damaged to the extent that it will not readily fit into an overpack, the drum will not be removed from the excavation.

Removal of drums will be accomplished using either the track-hoe bucket alone, a strap in conjunction with the bucket, or a separate track-hoe equipped with a grappling device. Overpacking will be accomplished using any of this equipment. Overpacking activities will be conducted off to the side of the excavation over plastic sheeting. The project budget assumes that both a track-hoe for excavating and a track-hoe equipped with a grappling device will be on site. It has been ABB-ES' experience that utilizing two track-hoes allows for a more efficient excavation process. Using one track-hoe would require a changeover of equipment. The expected downtime associated with this changeover would be more costly than having an additional track-hoe on standby.

It is ABB-ES' understanding, and the MDNR has concurred, that overpacking the drums removed from the excavation will comply with current Federal and State regulations for containment. Overpack containers will be staged on the ground near the test pit excavation. No formal staging area will be constructed. The containers will be labeled using a system that will identify the excavation area and the

order in which they were removed. The field notes will include the same label for each drum and a description of the area and surrounding materials in the excavation from which the drums were removed. The date on which the drums were excavated will also be marked on the overpack containers. It is ABB-ES' understanding that no arrangements or funds have been provided in this work plan and associated budget to dispose of waste materials such as overpacked drums, containerized decontamination waste, and discarded personal protection equipment.

So who's doing disposal?

During test pitting activities, all personnel within the exclusion zone will be outfitted in Level B personal protection equipment (PPE). Personnel in the contaminant reduction zone will be outfitted in modified Level D, ready to don Level B equipment if necessary. Prior to initiating each test pit, exclusion and contaminant reduction zones will be clearly defined. The site-specific HASP will outline zonation requirements in further detail.

The following air monitoring tasks will be conducted by ABB-ES during test pitting:

- Collection of background measurements prior to the initiation of test pitting using a photoionization detector (PID) to measure total volatile organic compounds (VOCs), a respirable dust monitor (RDM) to measure dust levels, and radiation, hydrogen sulfide and cyanide meters;
- Recording of hourly meteorological observations (air temperature, wind direction, and approximate wind speed);
- Personal exposure monitoring for VOCs using personal sampling for the two on-site personnel working most closely to the excavation inside the exclusion zone.
- Ambient air monitoring within the exclusion zone using a PID, RDM, a combination lower explosive limit/oxygen meter, a radiation detector, and cyanide and hydrogen sulfide meters;
- Exclusion zone perimeter monitoring for total VOCs and particulates using a PID and an RDM; and

- Hourly downwind site perimeter monitoring for total VOCs using a PID and particulate monitoring using an RDM.

The MDNR has agreed to perform compound-specific monitoring at the site perimeter. It is ABB-ES' understanding that compound-specific will be initiated if action levels specified in the HASP are exceeded at the site perimeter. The action level is to be specified by the MDNR for inclusion in the site HASP. The labor and equipment necessary to perform compound-specific air monitoring will be provided by the MDNR.

Task 6: Demobilization

This task includes decontaminating and removing the equipment used for the test pitting. *disposal?* Fluids used for decontamination will be drummed and staged near the decontamination pad. Discarded personal protection equipment will also be drummed and staged near the decontamination pad. The budget for this task also includes the cost associated with disconnecting the telephone and electricity and removing the temporary field office/storage trailer.

Task 7: Analytical Program

Based upon discussions with the MDNR, it is assumed that samples collected from drums, adsorbent tubes from personal monitoring pumps, and any compound specific air samples will be analyzed by the MDNR laboratory. Costs for these analyses are not included in this Work Plan.

It is assumed that samples from drums and from any required compound specific air monitoring will be analyzed for VOCs, semivolatile organic compounds, pesticides, polychlorinated biphenyls, and selected metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver and zinc), and that the adsorbent tubes from personal monitoring pumps will be analyzed for VOCs. It is further assumed that the MDNR laboratory is equipped to analyze all of these types of samples. No data validation will be performed by ABB-ES.

Quality control samples will be submitted with samples collected from the drums for analysis. It is assumed that duplicate samples will be submitted for all parameters specified at a level of 10 percent.

It is further assumed that matrix spike/matrix spike duplicate samples will be collected for each matrix at a rate of 5 percent. Based upon discussions with the MDNR, the MDNR will provide trip blanks to be included with samples.

Task 8: Reporting/Documentation

Samples submitted for laboratory analysis will be documented on ABB-ES' standard field sampling forms. ABB-ES will also complete a brief daily activity log to summarize activities completed for each day that field work takes place. In addition, ABB-ES field staff will maintain a log book of field activities completed by ABB-ES and its contractors during the project.

ABB-ES will also write a technical memorandum which summarizes the field work and presents pertinent observations made during the test pitting. The memorandum will not present the analytical results for samples collected from drums and from the air monitoring. Upon completion of the field work, copies of ABB-ES' standard sampling forms, the daily activity logs, and the log book will be provided to the MDNR and later included as appendices to the technical memorandum.

Two copies of the draft technical memorandum will be submitted to the MDNR for review and comment. After receiving written comments, ABB-ES will make the appropriate revisions and submit three copies of the final document. In preparing the project budget and schedule, it is assumed that revisions requested by the MDNR will be minor.

Due to the anticipated short duration of the project, interim status or progress reports will not be prepared by ABB-ES. At a minimum, the ABB-ES site manager will contact the MDNR project manager once per week to provide the MDNR with the current status of the project.

PROJECT ORGANIZATION AND MANAGEMENT

As prime contractor, ABB-ES will provide the overall project management and technical supervision on the project and will have a primary responsibility for successful completion of the project. Figure 1 presents the project organization.

As the Program Manager, Michael O'Hearn, P.E., will be responsible for coordinating and monitoring the performance of the Site Manager and other project staff with regard to the technical, legal, and administrative requirements of the contract and site-specific agreements. Mr. O'Hearn will confer regularly (e.g., weekly) with the project team to review project status, ensure commitments are met, and to identify problems or potential problems to be addressed. The Program Manager will also review all invoices and project deliverables prior to submittal to MDNR, and communicate with the MDNR and with subcontractors on selected project issues. Mr. O'Hearn will be supported in this role by Project Assistant, Beverly Waack.

Garret Bondy, P.E., will be the Site Manager for the ASTL project. The Site Manager is the primary contact between MDNR and the project team on issues relating to the project scope, schedule, budget, and technical issues. Administratively, his responsibilities are to ensure that the project is proceeding on schedule and that the budgets for the various tasks are maintained. Mr. Bondy will also have responsibility for technical direction of the investigation and coordination within the various technical disciplines required to complete the project.

As Field Operations Leader, Craig Kielty will be responsible for successfully implementing the field program. He will direct all field activities and monitor work performed by the subcontractors. Because of the significance of health and safety issues in a project of this type, Mr. Kielty will be supported in the field by a separate Health and Safety Officer (HSO). The HSO is responsible for developing the HASP and ensuring that the project team complies with requirements of the HASP. Meg MacLeod from ABB-ES' Portland, Maine, office will serve as the HSO for this project.

Technical Review for the project will be provided by Kim Kesler-Arnold, C.P.G. who is experienced in conducting test pitting and characterizing drummed wastes at landfill sites.

Resumes for all key project personnel are on file with MDNR, Environmental Response Division, in Lansing.

PROJECT MANAGEMENT

ABB-ES will utilize computerized management information systems to assist in the overall management

of the project and to track project and work assignment schedules, budgets, and manpower requirements. Through the use of these systems, monthly invoices will be submitted to MDNR. During field activities, costs will be estimated on a daily basis to ensure that projects costs do not exceed the authorized funds. This information will be provided to the MDNR Project Director.

To monitor manpower utilization, separate activity codes will be assigned to track labor costs for each major phase of the project (e.g., field work). ABB-ES will not segregate costs in any way other than by phase. If MDNR requires an alternate cost segregation scheme, it must be requested prior to Work Plan approval.

PROJECT SCHEDULE

Figure 2 presents the project schedule. The ASTL project is expected to require approximately 17 weeks to complete following MDNR approval of the Work Plan and issuance of a CRF (see attached Project Schedule). It is expected that test pitting will be initiated within 6 weeks of receiving the CRF.

The schedule is based on the scope of work described previously and the following assumptions:

- MDNR will provide access to the site and surrounding properties as necessary for ABB-ES and its subcontractors to conduct the work.
- Field work will not be delayed by inclement weather (or other unforeseen circumstances beyond ABB-ES' control).
- MDNR review time will not exceed 2 weeks for the draft Work Plan, QAPP, and Technical Memorandum.
- Establishment of electrical and telephone service to the site trailer will not be delayed by the public utilities involved.

Significant delays in the project schedule beyond the control of ABB-ES may require a commensurate increase in the project budget due to costs for time related activities such as project management

functions.

PROJECT BUDGET

The total estimated cost of the program described in this Work Plan is \$96,424. A budget of \$57,343 has been established for the field work, which consists of the mobilization, test pitting and demobilization tasks. At an estimated daily cost for test pitting of \$9,904, ABB-ES estimates that this budget will allow approximately three days of test pitting. Because the level of effort to be spent test pitting in each area is unknown, it is not possible to estimate the number of areas that can be test pitted for the budgeted amount. To maximize the time allowed for test pitting, ABB-ES will track expenditures in the field on a daily basis. The test pitting work will continue until either the budgeted amount is reached or the MDNR requests that the work cease, whichever occurs first.

Total labor hours for ABB-ES have been estimated at 771. Table 1 presents estimated labor hours by task. A summary of other direct costs is provided in Table 2. Table 3 summarizes budget information including labor costs, other direct costs, and fee. A completed OF-60 for ABB-ES is included at the end of this section along with detailed labor cost information for ABB-ES.

This budget breakdown is for estimating purposes only. The actual costs for each task may vary from these estimates, and surplus project funds resulting from cost savings achieved in one task may be applied to another task as long as the total project budget is not exceeded. ABB-ES will not exceed the budget established in the approved Work Plan without the written authorization of the MDNR.

The project budget is based on the scope of work described previously and the following assumptions:

- MDNR is responsible for providing access to all portions of the site or adjacent properties as necessary for ABB-ES and its subcontractors.
- Access to all test pit locations can be gained with track-mounted excavating equipment, and no clearing or road building will be required.
- Level B personal protection will be required for test pitting operations.

- MDNR will provide materials necessary to construct a temporary decontamination pad (10-mil plastic sheeting and timbers).
- MDNR will photo-document the test-pitting activities.
- MDNR will provide one representative qualified to work at Level B to assist with and direct test pitting operations in the field.
- MDNR will provide two-way radios for on-site communications during test pitting operations.
- MDNR will mark the locations of areas to be excavated in the field two weeks in advance of the test pitting operations.
- MDNR will provide all required laboratory services and pre-prepared sample bottles.
- The excavation contractor will provide the air supply for all ABB-ES and one MDNR representative working within the exclusion zone.
- Any drums, wastes, or soils that are removed from the excavations will be drummed and left on site for subsequent disposal. ABB-ES is not responsible for the disposal of these materials.
- Decontamination fluids and used PPE will be drummed and left on site for subsequent disposal. ABB-ES is not responsible for the disposal of these materials.
- Normal soil conditions will be encountered with no dewatering required, and excavations will not exceed 15 feet in depth.
- MDNR is responsible for clearing underground public utilities with Miss Dig.
- Compound specific air monitoring will be conducted as necessary during test pitting activities by MDNR.

Other assumptions applicable to specific tasks may be presented in the appropriate tasks descriptions. Significant deviations from these assumptions may make it necessary to adjust the project budget (and/or schedule). In addition, the project budget is based on our current MDNR-approved rates which may change during the project. ABB-ES will invoice MDNR for services provided during this project using the approved rates in effect at the time of performance. This may require an adjustment to the authorized project budget during the course of the project.

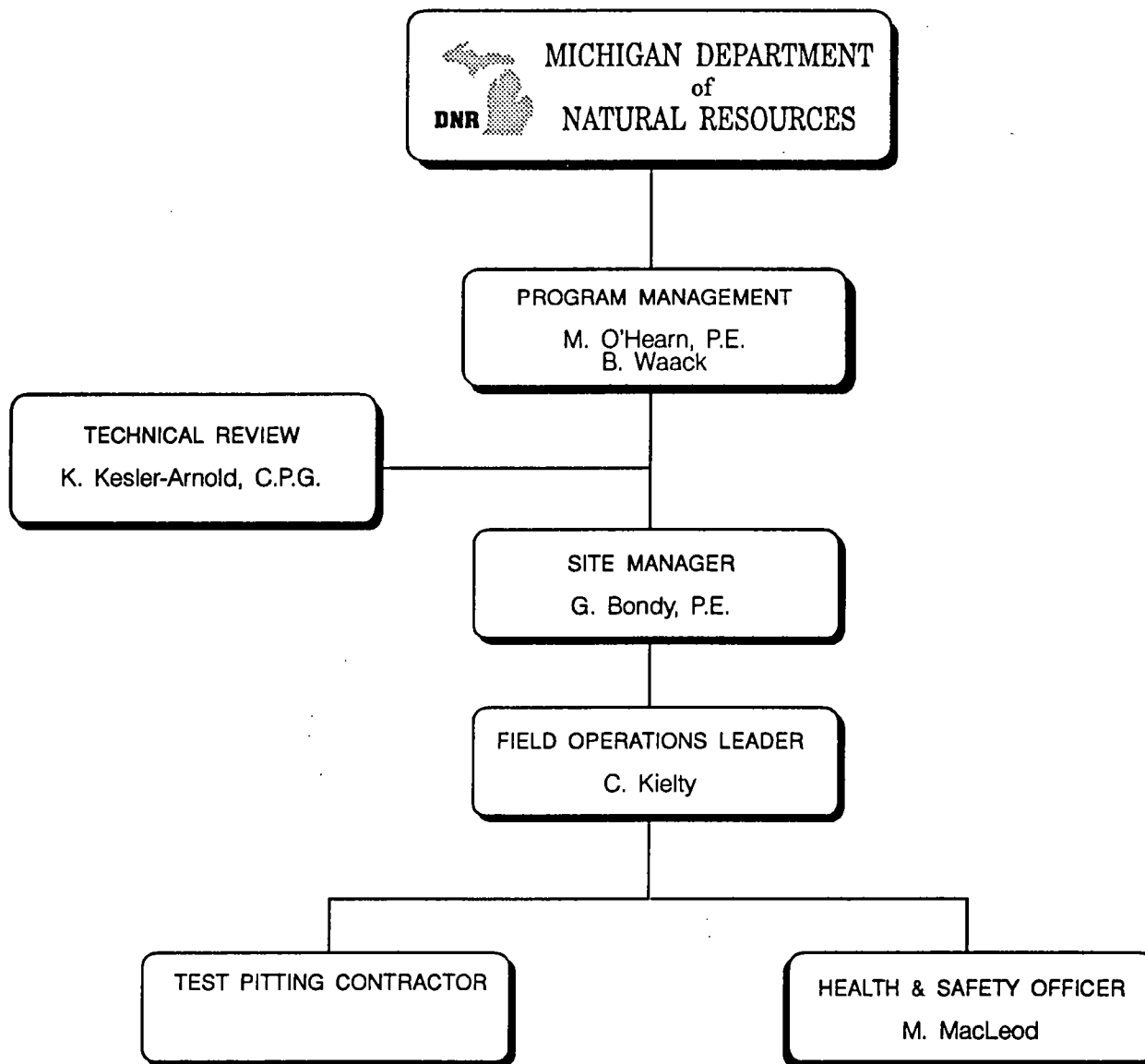
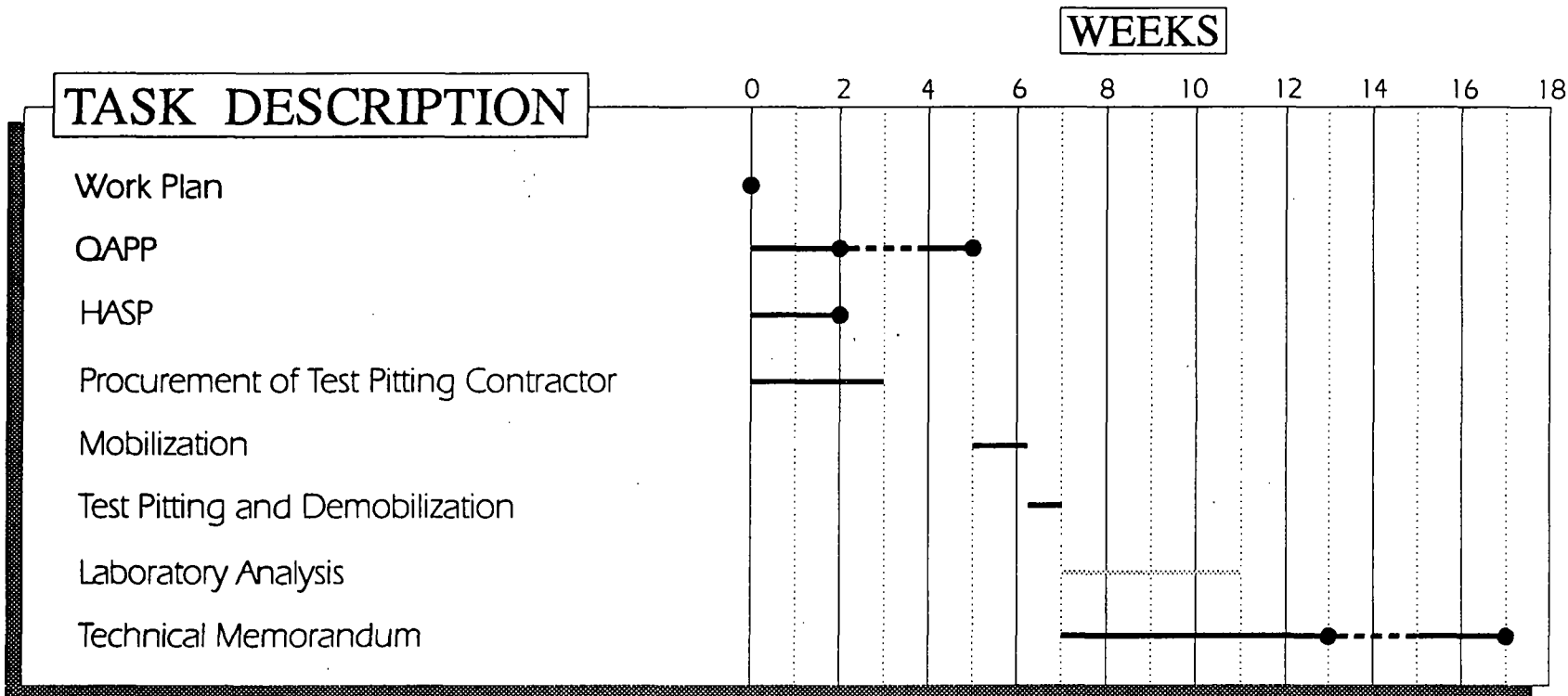


FIGURE 1
PROJECT ORGANIZATION
MDNR - ALBION/SHERIDAN TOWNSHIP LANDFILL
ALBION, MICHIGAN



- ABB Activity
- - - MDNR Review
- Laboratory
- Deliverable

NOTE:
Timeline starts at receipt of Contract Release Form

FIGURE 2
PROJECT SCHEDULE
MDNR - ALBION/SHERIDAN TOWNSHIP LANDFILL
ALBION, MICHIGAN

ABB Environmental Services, Inc.

TABLE 1
BREAKDOWN OF LABOR HOURS
ALBION-SHERIDAN LANDFILL
ALBION, MICHIGAN

TASK	Professional				Technical			Secretary/ Clerical	Task Total
	4	3	2	1	3	2	1		
1 PREPARE WORK PLAN	0	95	88	0	25	0	0	0	208
2 PREPARE QUALITY ASSURANCE PROJECT PLAN	0	23	39	0	11	0	0	0	73
3 PREPARE HEALTH AND SAFETY PLAN	0	12	36	0	12	0	0	0	60
4 MOBILIZATION	0	21	58	4	9	0	0	0	92
5 TEST PITTING	0	28	108	0	24	0	0	0	160
6 DEMOBILIZATION	0	5	28	0	8	0	0	0	41
7 ANALYTICAL PROGRAM	0	0	0	0	0	0	0	0	0
8 PREPARE TECHNICAL MEMORANDUM	0	36	74	0	27	0	0	0	137
TOTAL HOURS BY LEVEL:	0	220	431	4	116	0	0	0	771

Note: A minimal number of clerical hours have been included in the Project Assistant (T3) budget.

TABLE 2
SUMMARY OF OTHER DIRECT COSTS
ALBION-SHERIDAN LANDFILL
ALBION, MICHIGAN

TRAVEL:		\$1,653
Vehicle Charges	\$534	
Per Diem (4 people/3 nights; 1 person/2 nights)	\$1,119	
EQUIPMENT:		\$1,440
Hnu PI Meter (2 units/4 days)	\$520	
LEL/O2 Meter (2 units/4 days)	\$120	
Meteorological Station (1 unit/4 days)	\$400	
Radiation Detector (1 unit/4 days)	\$100	
Respirable Dust Monitor (1 unit/4 days)	\$100	
Personal Sample Pumps (2 units/4 days)	\$200	
OTHER:		\$31,039
Telephone	\$448	
Auto Drafting	\$26	
Postage/Shipping	\$250	
Photocopying/Reproduction	\$265	
Miscellaneous	\$400	
Field Supplies (e.g., gloves, boots, tape, etc.)	\$900	
Excavation Contractor	\$26,500	
Trailer	\$1,000	
Utilities	\$800	
Porta-John	\$250	
Refrigerator	\$100	
Bottled Water	\$100	
TOTAL		\$34,132

TABLE 3
BUDGET SUMMARY BY PHASE
ALBION-SHERIDAN LANDFILL
ALBION, MICHIGAN

TASK	HOURS	LABOR (1)	COSTS (\$)			
			OTHER DIRECT COSTS	SUBCONTRACTOR	FEE (2)	TOTAL
TASKS 1 THROUGH 8	771	\$53,527	\$34,132	\$0	\$8,766	\$96,424

(1) Direct labor and overhead

(2) Sum of fees on direct labor and overhead, other direct costs, and subcontract costs

PART I - GENERAL

1. RECIPIENT Michigan Department of Natural Resources	2. ASSISTANCE IDENTIFICATION NO. N/A
3. NAME OF CONTRACTOR OR SUBCONTRACTOR ABB Environmental Services, Inc.	4. DATE OF PROPOSAL April 4, 1994
5. ADDRESS OF CONTRACTOR OR SUBCONTRACTOR (include ZIP Code) 39255 Country Club Drive Suite B-25 Farmington Hills, MI 48331 TELEPHONE NUMBER (include Area Code) (313) 489-8040	6. TYPE OF SERVICE TO BE FURNISHED Albion-Sheridan Landfill Test Pitting

PART II - COST SUMMARY

7. DIRECT LABOR (specify labor categories)	ESTIMATED HOURS	HOURLY RATE	ESTIMATED COST	TOTALS
See Labor Cost Summary	771	\$ Various	\$18,716	
DIRECT LABOR TOTAL				\$18,716
			ESTIMATED COST	
8. INDIRECT COSTS	RATE	x BASE =		
Labor Overhead	1.86	\$18,716	\$34,811	
INDIRECT COSTS TOTAL				\$34,811
9. OTHER DIRECT COSTS			ESTIMATED COST	
a. TRAVEL				
(1) TRANSPORTATION			\$534	
(2) PER DIEM			\$1,119	
TRAVEL SUBTOTAL			\$1,653	
b. EQUIPMENT, MATERIALS, SUPPLIES (Specify Categories)	QTY	COST	ESTIMATED COST	
Equipment & Supplies (see Table 2)			\$1,440	
EQUIPMENT SUBTOTAL			\$1,440	
c. SUBCONTRACTORS			ESTIMATED COST	
			\$0	
SUBCONTRACT SUBTOTAL			\$0	
d. OTHER (Specify Categories)			ESTIMATED COST	
Other Direct Costs (see Table 2)			\$31,039	
			\$0	
OTHER SUBTOTAL			\$31,039	
OTHER DIRECT COSTS TOTAL				\$34,132
10. TOTAL ESTIMATED COST				\$87,659
11. PROFIT 10% on Items 7&8; 10% on Item 9c; 10% on Items 9a, 9b, and 9d				\$8,766
12. TOTAL PRICE				\$96,424

[illegible]

14. CONTRACTOR

14a. HAS A FEDERAL AGENCY OR A FEDERALLY CERTIFIED STATE OR LOCAL AGENCY PERFORMED ANY REVIEW OF YOUR ACCOUNTS OR RECORDS IN CONNECTION WITH ANY OTHER FEDERAL ASSISTANCE AGREEMENT OR CONTRACT WITHIN THE PAST 12 MONTHS?
X YES NO (if "yes" give name, address, and telephone number of reviewing office)

Mr. Robert Bechard (207) 443-3311 ext. 4240
Defense Contract Audit Agency
c/o Bath Iron Works
700 Washington Street
Bath, ME 04530-0999

STATE OF MICHIGAN ERD NO. 9477


14c. This proposal is submitted for use in connection with and in response to:

(1) MDNR Albion-Sheridan Landfill Test Pitting

<p>This is to certify to the best of my knowledge and belief that the cost and pricing data summarized herein are complete, current and accurate as of:</p>	<p>(2) DATE</p>
<p></p>	<p>April 4, 1994</p>

April 4, 1994

I further certify that a financial management capability exists to fully and accurately account for the financial transactions under this project. I further certify that I understand that the subsequent price may be subject to downward renegotiation and/or recoupment where the above cost and pricing data have been determined, as a result of audit, not to have been complete, current, and accurate as of the date above.

(3) TITLE OF PROPOSER Matthew D. Jerue, P.E. Manager, Michigan Service Center	SIGNATURE OF REVIEWER 	DATE OF EXECUTION April 4, 1994
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Matthew D. Jene

April 4, 1994

I certify that I have reviewed the cost/price summary set forth herein and the proposed costs/prices appear acceptable for subagreement award..

TITLE OF PROPOSER	SIGNATURE OF REVIEWER	DATE OF EXECUTION
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TITLE OF PROPOSER	SIGNATURE OF REVIEWER	DATE OF EXECUTION
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TITLE OF PROPOSER	SIGNATURE OF REVIEWER	DATE OF EXECUTION
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ABB ENVIRONMENTAL SERVICES, INC.
LABOR COST SUMMARY
ALBION LANDFILL
08809-00

CLASSIFICATION	NAME	FUNCTION	HOURS	RATE	AMOUNT
P-3	M. O'HEARN	PROGRAM MANAGER	59.0	\$37.64	\$2,220.54
	G. BONDY	SENIOR ENVIR ENGINEER	145.0	\$35.07	\$5,085.37
	K. KESLER ARNOLD	SENIOR HYDROGEOLOGIST	16.0	\$37.14	\$594.27
		TOTAL P-3 *****	220.0		\$7,900.17
P-2	J. KRALIK	GEOLOGIST	68.0	\$17.17	\$1,167.57
	C. KIELTY	SCIENTIST	263.0	\$22.04	\$5,797.05
	M. MACLEOD	H&S SUPERVISOR	100.0	\$22.13	\$2,213.47
		TOTAL P-2 *****	431.0		\$9,178.08
P-1	R. HAGEN	BUYER	4.0	\$15.19	\$60.77
		TOTAL P-1 *****	4.0		\$60.77
T-3	B. WAACK	PROJECT ASSISTANT	96.0	\$13.74	\$1,319.06
	D. HOGG	GRAPHICS TECHNICIAN	20.0	\$12.88	\$257.50
		TOTAL T-3 *****	116.0		\$1,576.56
		TOTAL LABOR *****	771.0		\$18,715.58